



Recent NIST Forensic Science Efforts

John M. Butler

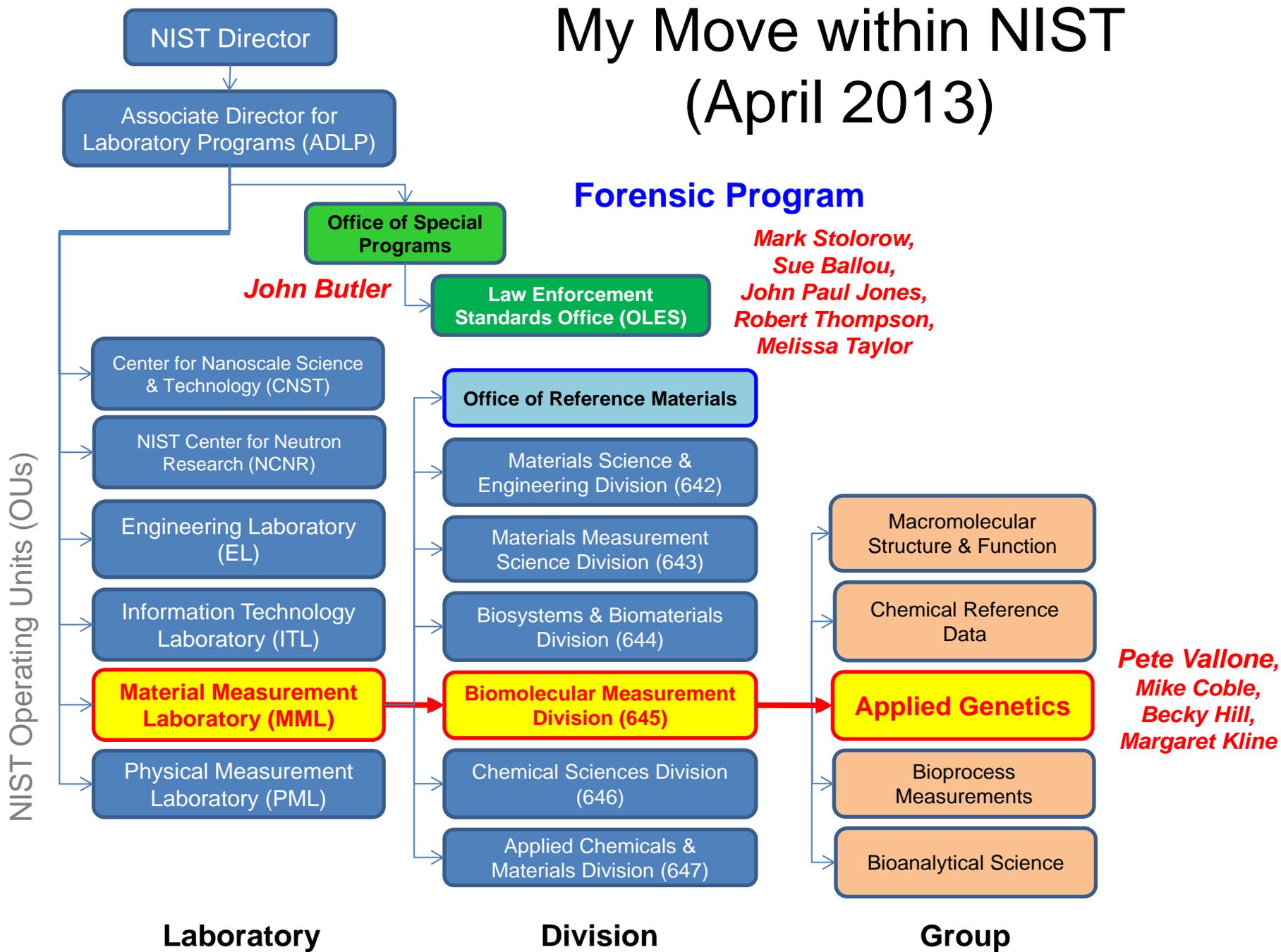
Special Assistant to the Director for Forensic Science
Office of Special Programs



SWGAM
July 18, 2013



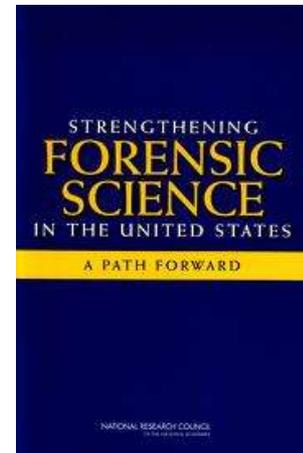
My Move within NIST (April 2013)





Harry T. Edwards
U.S. Court of Appeals (DC)
Co-Chair, Forensic Science Committee

National Academies Report on Forensic Science



- Released February 18, 2009
- Entitled “Strengthening Forensic Science in the United States: A Path Forward”
- 13 recommendations provided to Congress
- **Recommends establishing a National Institute of Forensic Science (NIFS)**
- NIST and the U.S. Department of Justice announced plans on February 15, 2013 to establish a **National Commission on Forensic Science**

National Commission on Forensic Science (NCFS)

- Federal Advisory Committee – like the DNA Advisory Board
 - Different from a White House-controlled committee (e.g., NSTC SoFS)
- Feb 15, 2013: announcement of DOJ-NIST agreement and NCFS formation
- Feb 22: Federal Register notice with applications for NCFS accepted until March 25
- **Review of >300 self-nominees is on-going (~30 to be selected)**
- Fall 2013: will likely hold its first meeting
- Plans for 4 meetings per year; has to be renewed after 2 years

Information from Federal Register Notice

- The Commission will recommend strategies for enhancing quality assurance in forensic science units.
- The duties of the Commission will include:
 - (a) Recommending priorities for standards development;
 - (b) reviewing and recommending endorsement of guidance identified or developed by subject-matter experts;
 - (c) developing proposed guidance concerning the intersection of forensic science and the courtroom;
 - (d) developing policy recommendations, including a uniform code of professional responsibility and minimum requirements for training, accreditation and/or certification; and
 - (e) identifying and assessing the current and future needs of the forensic sciences to strengthen their disciplines and meet growing demand.



Information from Federal Register Notice

- The Commission will be co-chaired by the Department of Justice and the National Institute of Standards and Technology.
- **Members will be appointed by the Attorney General** in consultation with the Director of the National Institute of Standards and Technology and the co-chairs of the Commission.
- Members will be selected to achieve a diversity of experiences, including Federal, State, and Local forensic science service providers; research scientists and academicians; Federal, State, Local prosecutors, defense attorneys and judges; law enforcement; and other relevant stakeholders. DOJ encourages submissions from diverse applicants with respect to backgrounds, professions, ethnicities, gender, and geography.
- **The Commission shall consist of approximately 30 members.** Members will serve without compensation.
- The Commission will generally meet four times each year at approximately three-month intervals.

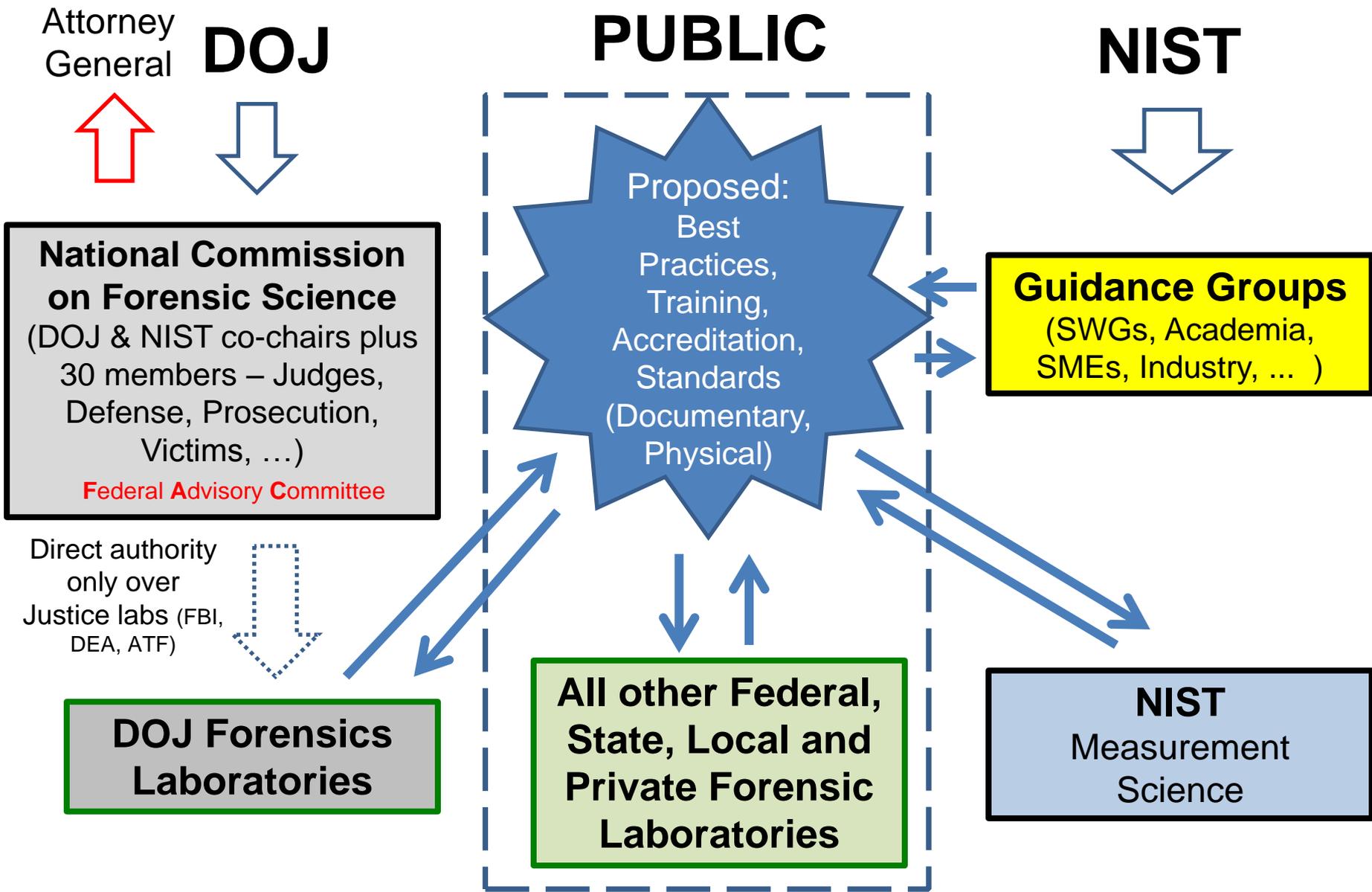
<https://federalregister.gov/a/2013-04140>

Duties of NCFSS defined in its Charter

4. Description of Duties: The duties to support the objectives described in paragraph 3 include:

- a. To recommend priorities for standards development to the Attorney General;
- b. To review and recommend that the Attorney General endorse guidance identified or developed by subject-matter experts;
- c. To develop proposed guidance concerning the intersection of forensic science and the courtroom;
- d. To develop policy recommendations, including a uniform code of professional responsibility and minimum requirements for training, accreditation and/or certification;
- e. **To consider the recommendations of the National Science and Technology Council's Subcommittee on Forensic Science;**
- f. To identify and assess the current and future needs of the forensic sciences to strengthen their disciplines and meet growing demands.

Proposed Initial Framework



Guidance Groups

- Currently 21 Scientific Working Groups (SWGs)
- Uncoordinated *ad hoc* specific discipline groups
 - DNA
 - Facial Recognition
 - Document Examination
 - Seized Drugs Analysis
 - Toxicology
 - Fire & Explosive Scenes
 - Gunshot Residue
 - Imaging Technology
 - Voice Identification
 - Bloodstain Pattern Analysis
 - Wildlife Forensic Analysis
 - Anthropology
 - Digital Evidence
 - Dogs & Orthogonal Detection
 - Disaster Victim Identification
 - Friction Ridge Analysis
 - Geological Materials
 - Firearms & Toolmarks
 - Trace Materials Analysis
 - Medico-Legal Death Investigation
 - Shoeprint and Tire Tread Evidence

To Inform NIST on Possible Guidance Group Frameworks

- Held a SWG Chair meeting at NIST on June 18
- Plan to publish a Notice of Inquiry in the Federal Register to solicit feedback on questions (July/August)
- Plan to hold a public meeting probably in October at NIST

Recent NIST Forensic Science Efforts

- Agreement between NIST and DOJ announced – Feb 15
- John Butler moved from MML Applied Genetics to NIST Office of Special Programs – Apr 1
- NIST webcasts (organized by John Paul Jones)
 - April 12 – DNA Mixtures
 - April 30/May 1 – Emerging Synthetic Drugs
 - June 4-5 - Questioned Documents
- Forensic governance meeting – Apr 22
- Biological Evidence Preservation Handbook published
- SWG Chairs meeting – June 18

Forensic Governance Meeting



- Organized by Mark Stolorow, NIST Office of Special Programs
- **Held April 22, 2013** at the new Washington DC Consolidated Forensic Laboratory
- A number of forensic crime laboratory directors from around the United States and Canada participated
- Presentations were made on the FORESIGHT Project (a West Virginia University-led effort to benchmark forensic lab productivity), the Netherlands Forensic Institute model for improving delivery of forensic services, and a history of U.S. forensic laboratory governance challenges

The Netherlands Forensic Institute's CEO Dr. Tjark Tjin-A-Tsoi prepared a white paper discussing his experiences and observations about governance of a modern forensic science organization. This 28-page paper is available at http://www.forensicinstitute.nl/about_nfi/news/2013/white-paper-on-trends-challenges-and-strategy-in-forensic-science.aspx?cp=34&cs=578

New Handbook on Biological Evidence Preservation

Available (as free pdf): <http://nvlpubs.nist.gov/nistpubs/ir/2013/NIST.IR.7928.pdf>

73 page handbook that makes recommendations for evidence retention, safe handling, packaging and storage, chain-of-custody and tracking, and appropriate disposal once evidence retention is no longer required by law

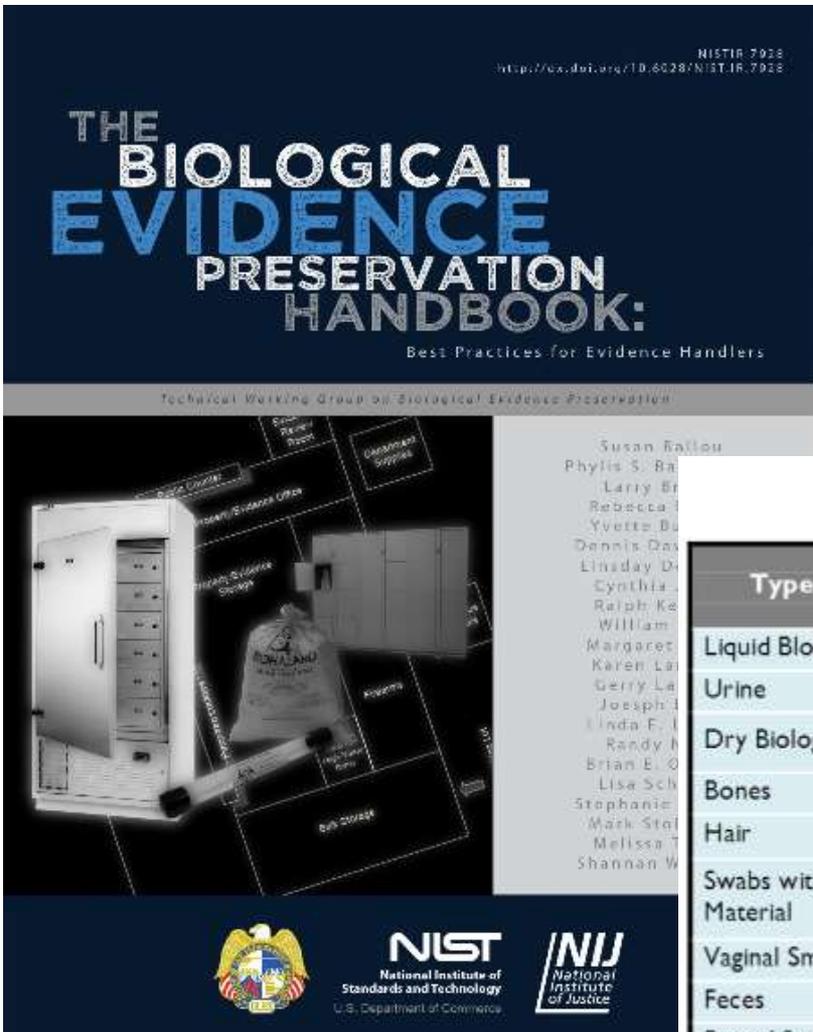


Table III-2: Long-Term Storage Conditions Matrix¹

Type of Evidence ²	Frozen	Refrigerated	Temperature Controlled	Room Temperature
Liquid Blood	Never	Best		
Urine	Best			
Dry Biological Stained Items			Best	
Bones			Best	
Hair			Best	Acceptable
Swabs with Biological Material			Best (dried)	
Vaginal Smears			Best	
Feces	Best			
Buccal Swabs			Best	
DNA Extracts	Best (liquid)	Acceptable (liquid)	Acceptable (dried)	

Released April 2013



NIST
National Institute of
Standards and Technology
U.S. Department of Commerce



NIJ
National
Institute of
Justice



Forensic Science Laboratories: Handbook for Facility Planning, Design, Construction, and Relocation



Forensic Science Laboratories Facilities Technical Working Group

James Aguilar
Tom Barnes
Joseph Browne
Yvette Burney
John Byrd
Bonnie Carver
Adam Denmark

Susan Halla
Lou Hartman
Alison Kennedy
Deborah Leben
Greg Matheson
Jim McClaren
Russell McElroy

Romeo Miranda
Kenneth Mohr
Michael Mount
Steve Sigel
Jennifer Smither
Melissa Taylor
Alicee Watts
Shannan Williams



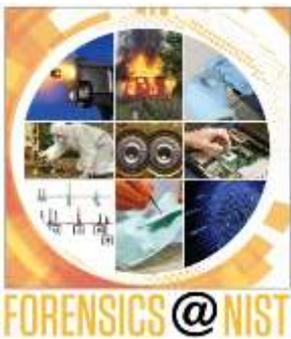
Forensic Science Laboratory Facilities Handbook

- A resource for laboratory directors, designers, consultants, and other stakeholders involved in the construction or major renovation of forensic science laboratories.
- The new **98-page handbook** will help facility planners design efficient, flexible and functional forensic labs which can evolve with mission requirements.

Released June 2013

Forensic Science Workshops/Webcasts

- **Measurement Science and Standards in Forensic Handwriting Analysis**
 - June 4 - 5, 2013
- **Emerging Trends in Synthetic Drugs Workshop**
 - April 30 - May 1, 2013
- **DNA Mixture Interpretation Workshop**
 - April 12, 2013 (8 hours)
- **Forensics@NIST 2012 Symposium**
 - November 28 - 30, 2012
- **Measurement Science and Standards in Forensic Firearms Analysis**
 - July 10 - 11, 2012



<http://www.nist.gov/oles/forensics/NIST-Forensic-Events.cfm>

DNA Mixture Interpretation

April 12, 2013 Webcast



NIST FORENSIC
SCIENCES

<http://www.nist.gov/oles/forensics/dna-analyst-training-on-mixture-interpretation.cfm>

- **8-hours of DNA mixture interpretation training**
- **11 presentations from five different presenters**
 - John Butler, Mike Coble, Robin Cotton, Bruce Heidebrecht, Charlotte Word
- **20 poll questions** asked via SurveyMonkey (>600 participated)
 - Addressed additional questions sent via email or Twitter
- **>1000 participants** (almost entire U.S. represented and >10 countries)
- **Available for viewing or download** for at least six months (storage costs may limit longer-term storage)



Left to right:

Gladys Arrisueno (NIST, Twitter feed monitor & poll questions)

John Paul Jones (NIST, webcast organizer)

Mike Coble (NIST, presenter)

John Butler (NIST, presenter & organizer)

Charlotte Word (Consultant, presenter)

Robin Cotton (Boston University, presenter)

Bruce Heidebrecht (Maryland State Police Lab, presenter)

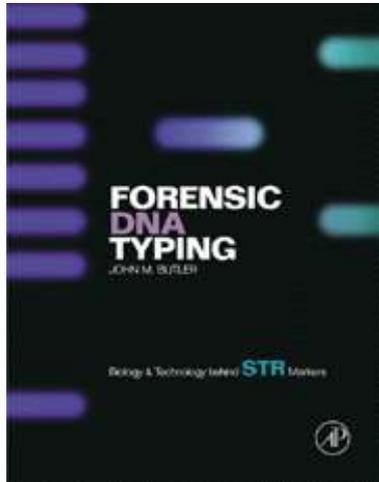
Future Event
Being Planned

DNA Technical Leaders Summit

- Collaboration with the FBI Laboratory CODIS Unit
- Goal to gather DNA technical leaders from the nation's ~200 public forensic laboratories
- Planned for November 20-21, 2013 in conjunction with the FBI's CODIS Conference (funding approval dependent)
- NIST is coordinating the agenda with FBI
 - John Paul Jones helping to organize the meeting
 - John Butler and Mike Coble will be speaking

Forensic DNA Typing Textbooks Have Set the Standard for the Field

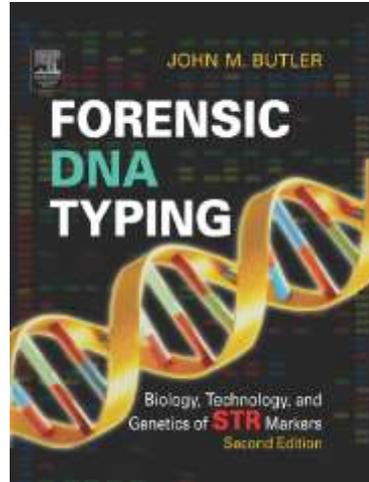
1st Edition



Jan 2001

335 pages

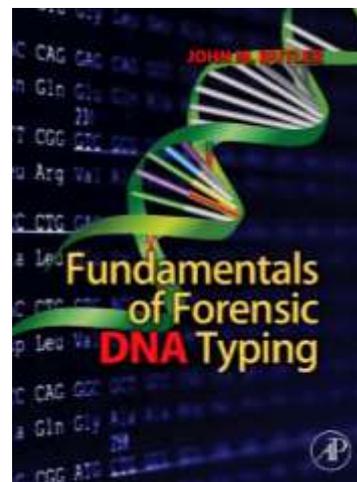
2nd Edition



Feb 2005

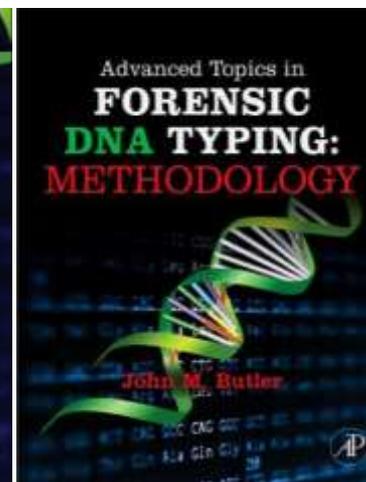
688 pages

3rd Edition (3 volumes)



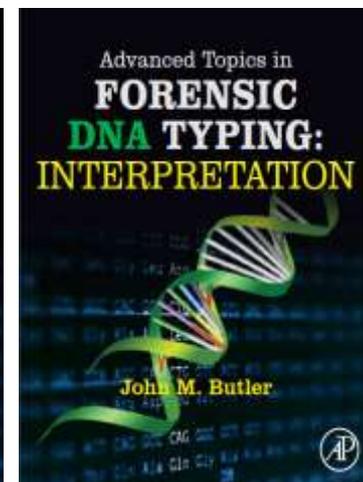
Sept 2009

520 pages



Aug 2011

704 pages

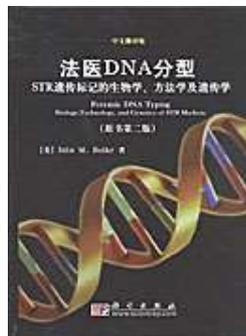


Fall 2014

~500 pages

Language Editions

Chinese (2007)



Japanese (2009)



Currently
being written

Meeting Judge Harrell...



Judge Glenn T. Harrell Jr.
(Upper Marlboro, MD)

- **June 21, 2013** – I spoke to a group of Maryland judges
- Judge Harrell was in the audience and I spoke with him afterwards
- He wrote the Court of Appeals decision that the Supreme Court overturned in *Maryland v King*
- He shared that he was angry for about 24 hours after the June 3, 2013 decision but that he understood the pragmatic decision made to help law enforcement with DNA testing

ALONZO JAY KING, JR.

v.

STATE OF MARYLAND

Opinion by Harrell, J.

Barbera and Wilner, JJ., dissent.

Filed: April 24, 2012

Upcoming Training Workshops



Two 2-day workshops on forensic DNA evidence interpretation being held **September 2-3, 2013** at International Society of Forensic Genetics meeting in Melbourne, Australia; presenters include Jo-Anne Bright (ESR), John Buckleton (ESR), John Butler (NIST), Michael Coble (NIST), Peter Gill (Oslo), and Duncan Taylor (FSSA)



3-hour workshop being held October 10, 2013 at the International Symposium on Human Identification meeting in Atlanta, Georgia; presenters include John Butler (NIST), Becky Hill (NIST), and Mike Coble (NIST)

**TL
Summit**

Being planned with FBI CODIS Unit to be held **November 20-21, 2013** in conjunction with National CODIS Conference (**dependent on funding approval**)

Panel Discussion on October 8, 2013



ENCODE Panel Discussion (opening session)

More than Identification? Forensic Database Loci, Medical Information, and Privacy

Dr. Cecelia Crouse (Palm Beach County Sheriff's Office)

Dr. John Butler (National Institute of Standards and Technology)

Dr. Gregory Wray (Duke University Institute for Genome Sciences and Policy)

Honorable Richard L Oftedal (Judge, West Palm Beach, FL)

Professor David Kaye (Penn State University School of Law)

Workshop on October 10, 2013



New Autosomal and Y-STR Loci and Kits: Making Data Driven Decisions

Organizer: John Butler (National Institute of Standards and Technology)

Welcome and Introductory Remarks (John Butler)

NIST Studies: Kit Concordance and U.S. Population Data (Becky Hill)

Experience with PowerPlex Fusion (TBD)

Experience with GlobalFiler **(TBD)**

NIST Studies with New Y-STR Loci & Kits (Mike Coble)

STRBase Resources and Wrap-up (John Butler)